

## Claims

What is claimed as being new and desired to be protected by LETTERS PATENT of the United States is as follows:

1. An apparatus for storing and comparing the surface marking characteristics of spent sample bullets and sample shell casings comprising:

    a sample retaining means, said sample retaining means forming an axis of sample rotation, said retaining means further including a motor to rotate the sample a predetermined angular distance;

    a microscope, said microscope being disposed such that the field of view of said microscope is perpendicular to said axis of sample rotation;

    lighting means for lighting the sample;

    camera means for recording a plurality of sequential sample images at predetermined intervals;

    a control and storage means for controlling said motor and determining said predetermined rotation distance and for storing said plurality of said sample images and for determining said predetermined intervals;

    an image consolidation means for consolidating said plurality of said sample images such that said sample images are formed into a panoramic strip of the exterior of the sample, said image consolidation means further being part of said control and storage means such that said consolidated panoramic strip may be stored; and

    a visual display means for displaying any pair of said stored panoramic strips such that a visual comparison can be made by a user of the surface marking characteristics of two separate samples.

2. The apparatus according to claim 1, wherein said panoramic strips are divided into two halves longitudinally by said image consolidation means and each one of said halves of one of said pair is displayed immediately next to the opposite said half of the other said panoramic strip being compared.
3. The apparatus according to claim 2 wherein one of said halves of said panoramic strips being compared is movable in relation to said opposite half.
4. The apparatus according to claim 1, wherein said predetermined angular distance of said sample rotation is five degrees.
5. The apparatus according to claim 4, wherein said predetermined interval is the time it takes to rotate the sample said five degrees.
6. The apparatus according to claim 5, wherein said panoramic strips are divided into two halves longitudinally by said image consolidation means and each one of said halves of one of said pair is displayed immediately next to the opposite said half of the other said panoramic strip being compared.
7. The apparatus according to claim 6 wherein one of said halves of said panoramic strips being compared is movable in relation to said opposite half.
8. A method of storing and comparing the surface marking characteristics of spent sample bullets and sample shell casings comprising the steps of:
  - mounting the sample on a retaining means having an axis of sample rotation;
  - acquiring a magnified image of a portion of the exterior of the sample;
  - storing said magnified image in a digital format;
  - rotating the sample a predetermined angular distance;

repeating said image acquiring step and said storing step until the entire circumferential outer surface of the sample has been stored in the digital format;

consolidating said stored images into a panoramic strip representing a magnified view of the entire circumferential outer surface of the sample;

displaying a pair of said panoramic strips such that a visual comparison can be made between the surface marking characteristics of the samples.

9. The method according to claim 8, wherein said predetermined angular distance is five degrees.

10. The method according to claim 8, further including a step between said consolidating step and said displaying step comprising:

dividing each said panoramic strip longitudinally to form two halves and pairing each said half with an opposite said half of the other of the said pair of panoramic strips for visual comparison.

11. The method according to claim 10, wherein said predetermined angular distance is five degrees.